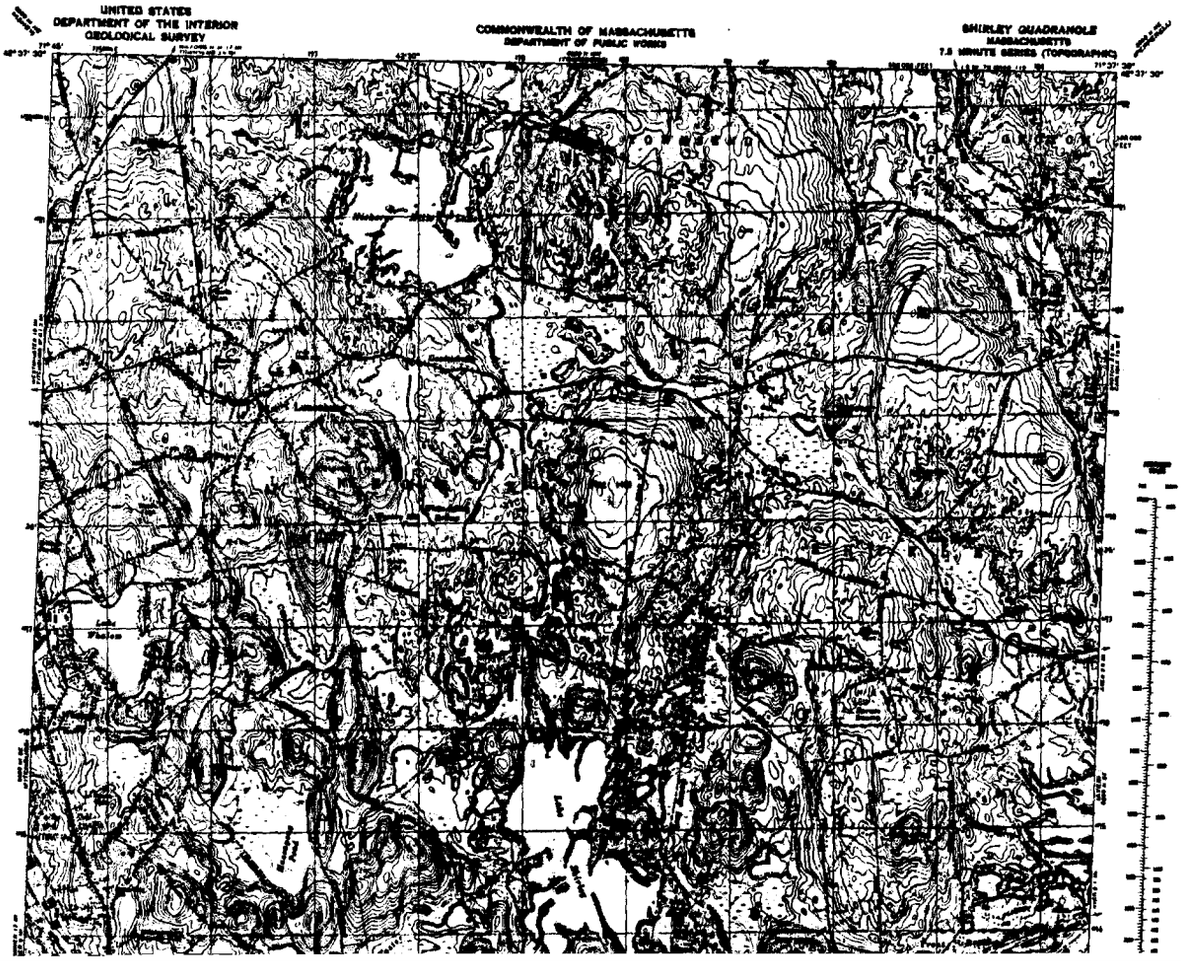
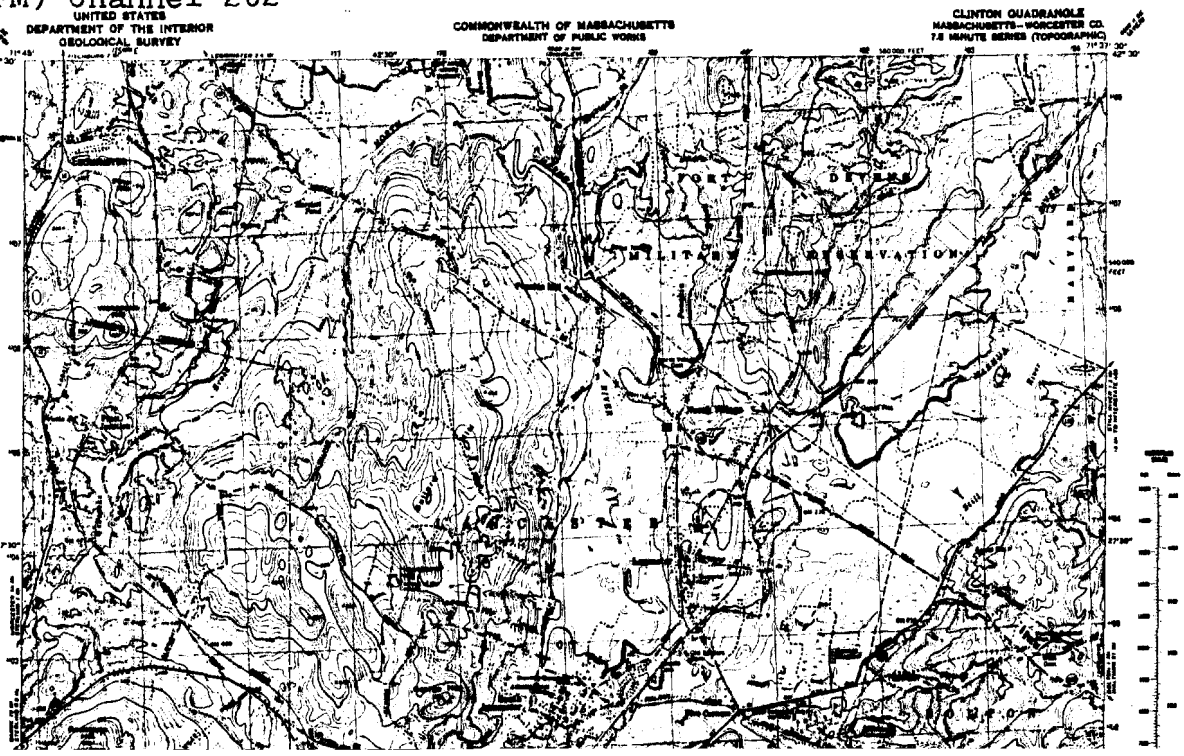
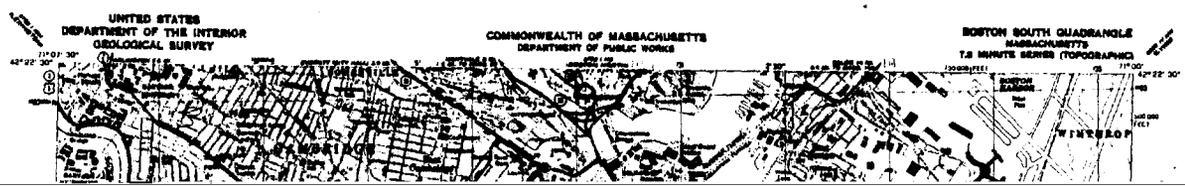
WIQH(FM) Channel 202



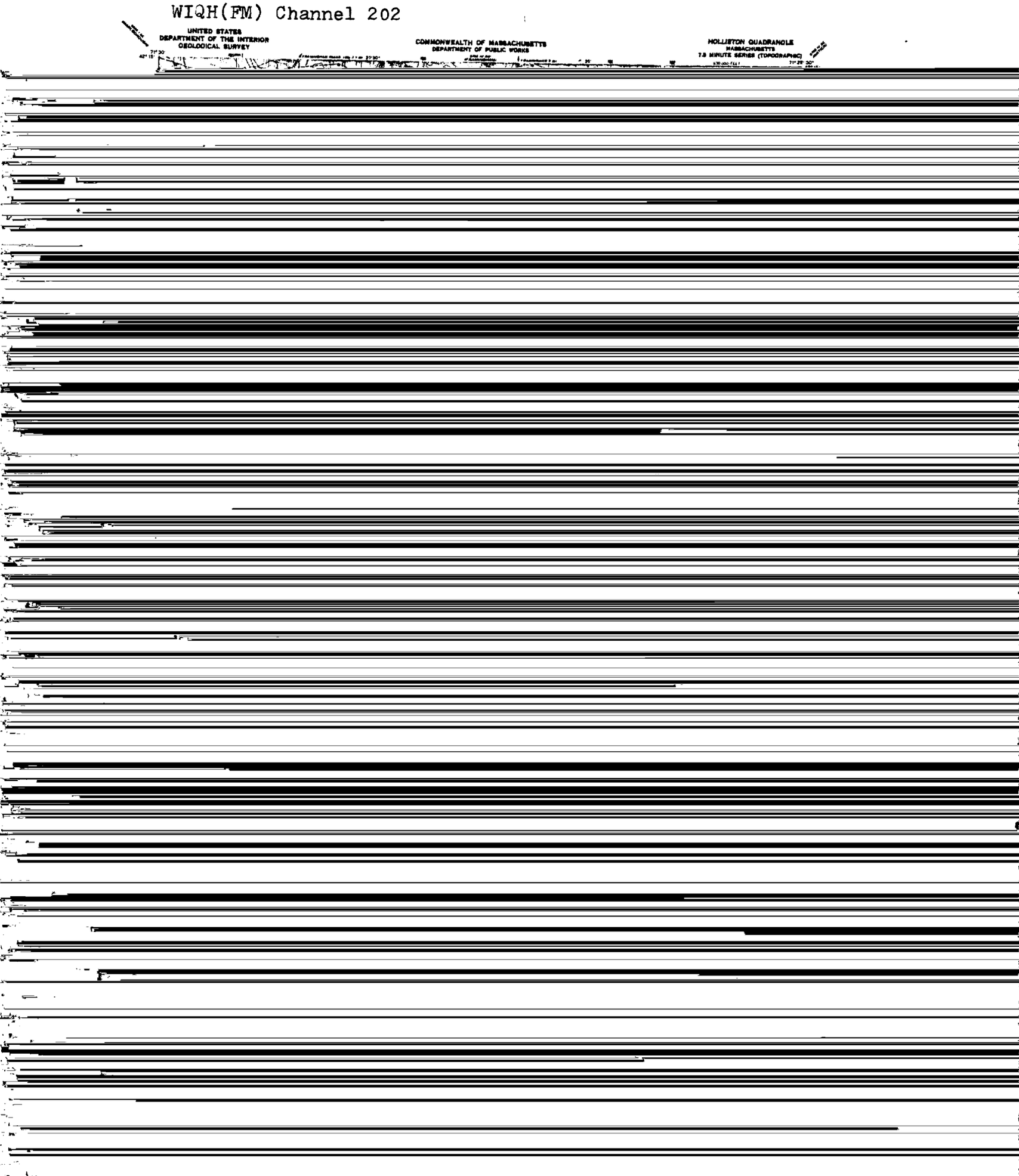
WIQH(FM) Channel 202



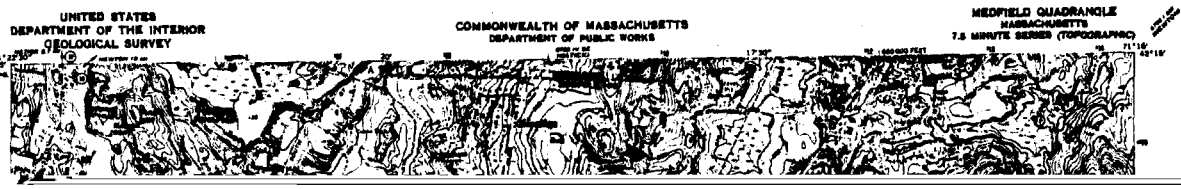
WIQH(FM) Channel 202



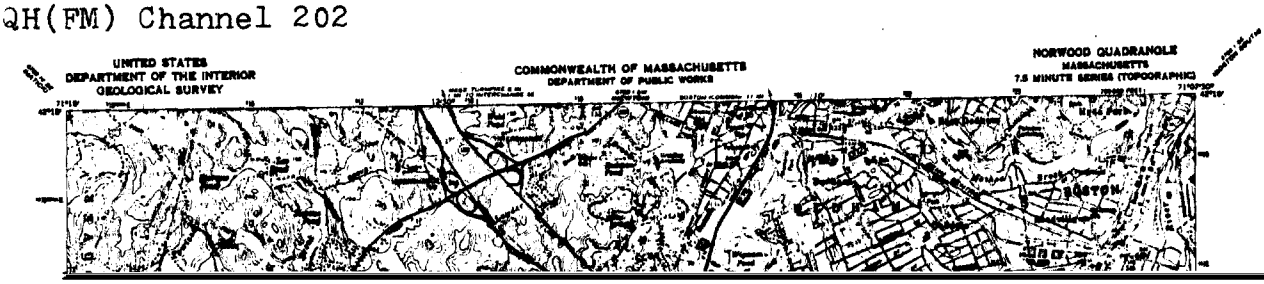
WIQH(FM) Channel 202



WIQH(FM) Channel 202



WIQH(FM) Channel 202



WIQH(FM) Channel 202

EXHIBIT 7y

Exhibit 7 contains maps showing the area within 25 kilometers of the WIQH transmitter as required by Section VB of this application. The area represented on the U.S. Geographical Survey 7.5 Minute Series Topographical Map, Marlborough, Massachusetts Quadrangle, is not included. This map is not available in map stores, and, indeed, the Geological Survey itself is out of this map. No other topographical representation of the area could be located (including 15 Minute Series Maps and the new, Metric Series Maps). No part of any of the eight radials required by Section V-B of this application lies on the missing map and there is no indication that there is any topographical feature in this area that will affect the proposed signal coverage of the proposed WIQH.

November 1985

WIQH(FM) CHANNEL 202

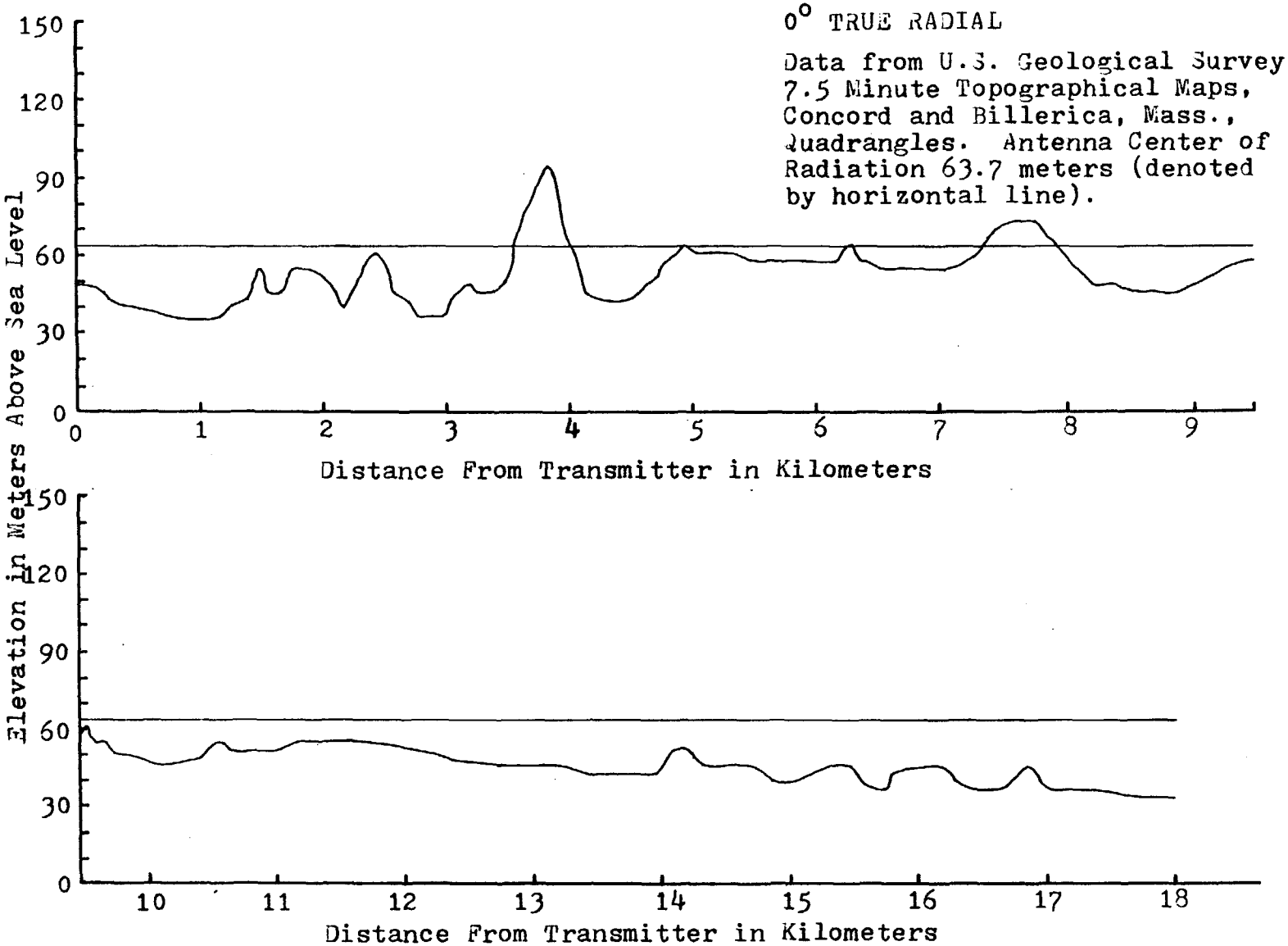



EXHIBIT 8a

October 1985

WIQH(FM) Channel 202

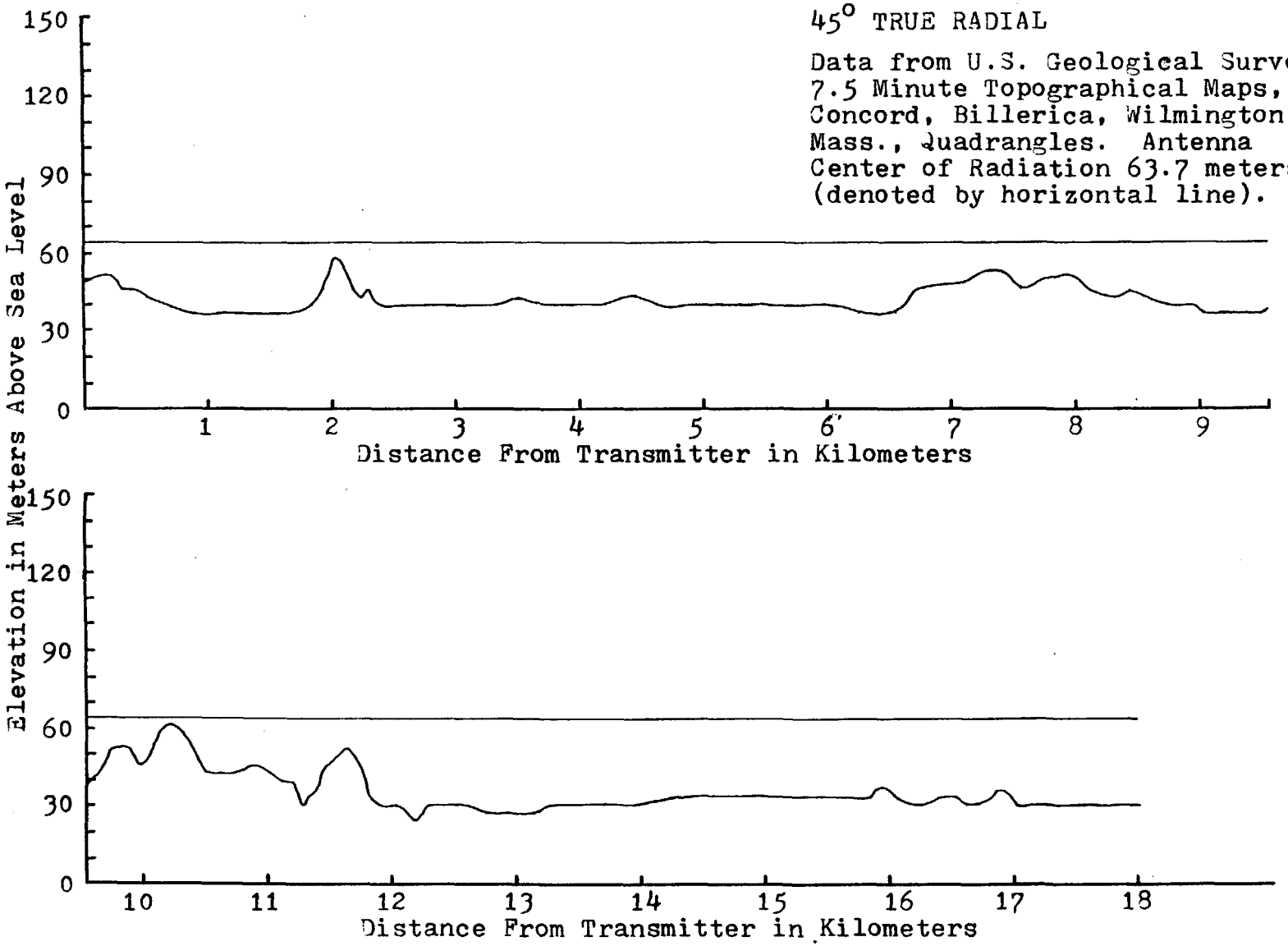



EXHIBIT 8b

October 1985

WIQH(FM) Channel 202

90° TRUE RADIAL

Data from U.S. Geological Survey 7.5 Minute Topographical Maps, Concord, Lexington, Boston North, Mass., Quadrangles. Antenna Center of Radiation 63.7 meters (denoted by horizontal line.)

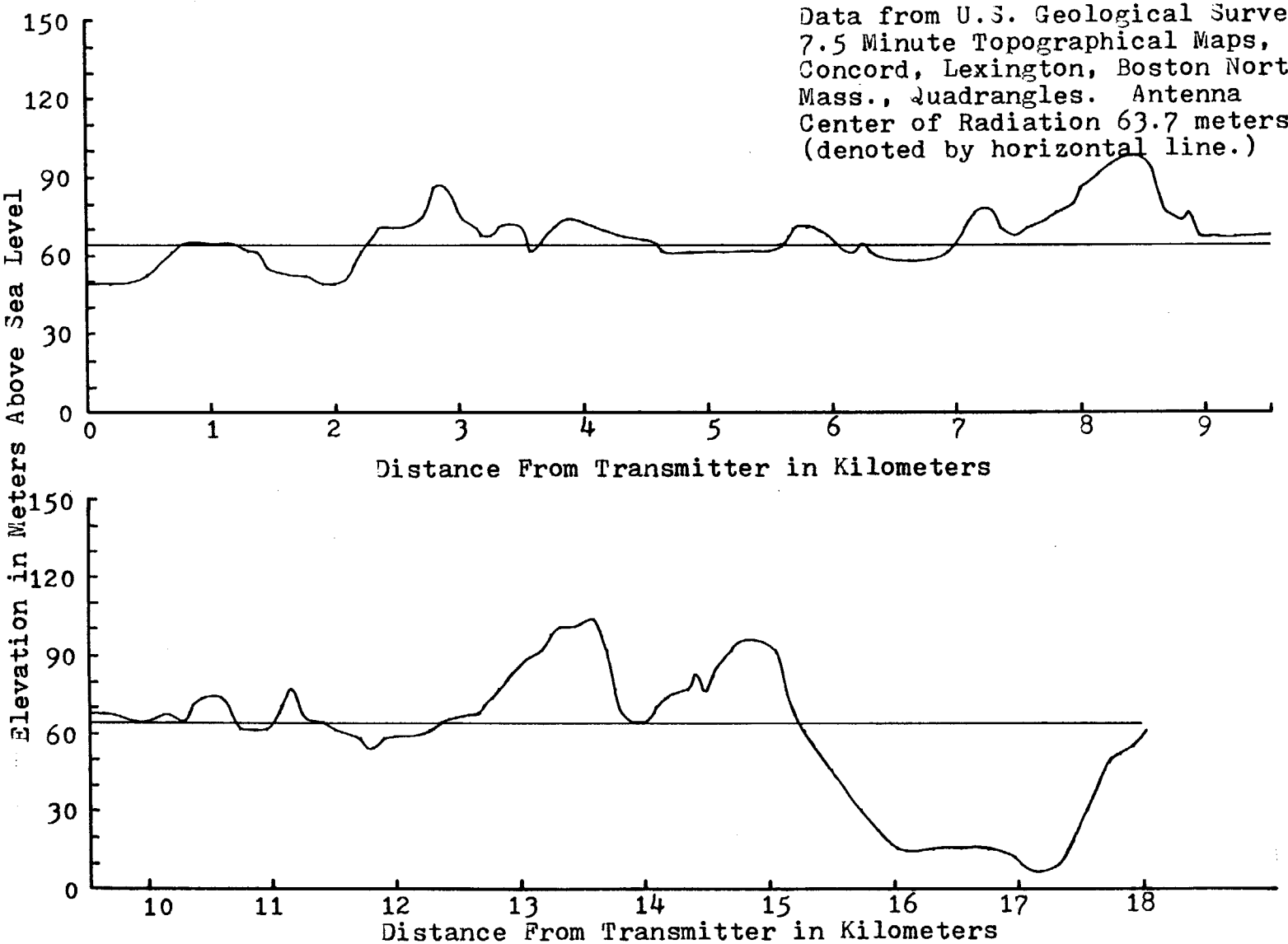



EXHIBIT 8c

October 1985

WIQH(FM) Channel 202

135° TRUE RADIAL

Data from U.S. Geological Survey 7.5 Minute Topographical Maps, Concord, Natick, Newton, Mass., Quadrangles. Antenna Center of Radiation 63.7 Meters (denoted by horizontal line).

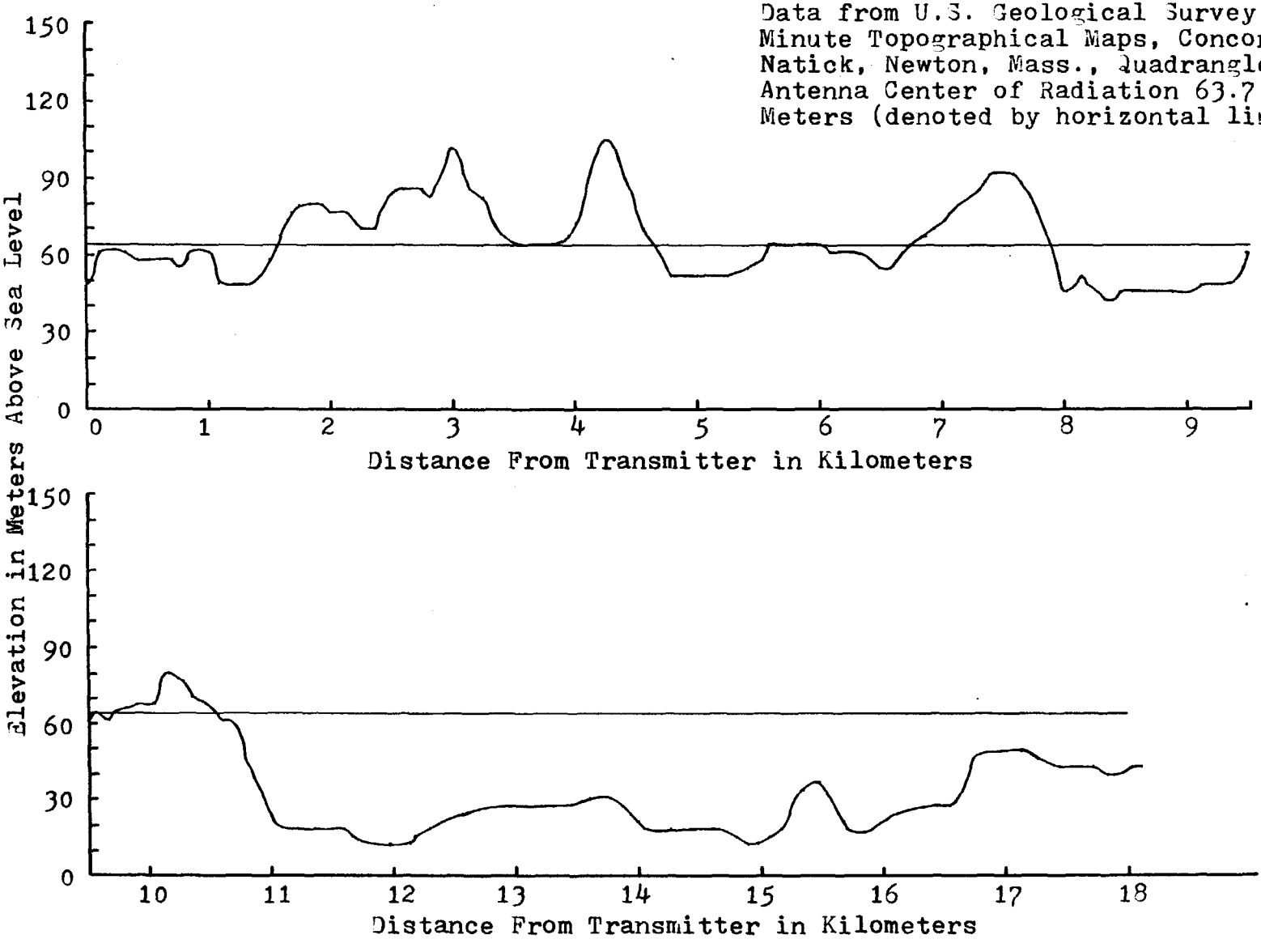



EXHIBIT 8d

October 1985

WIQH(FM) Channel 202

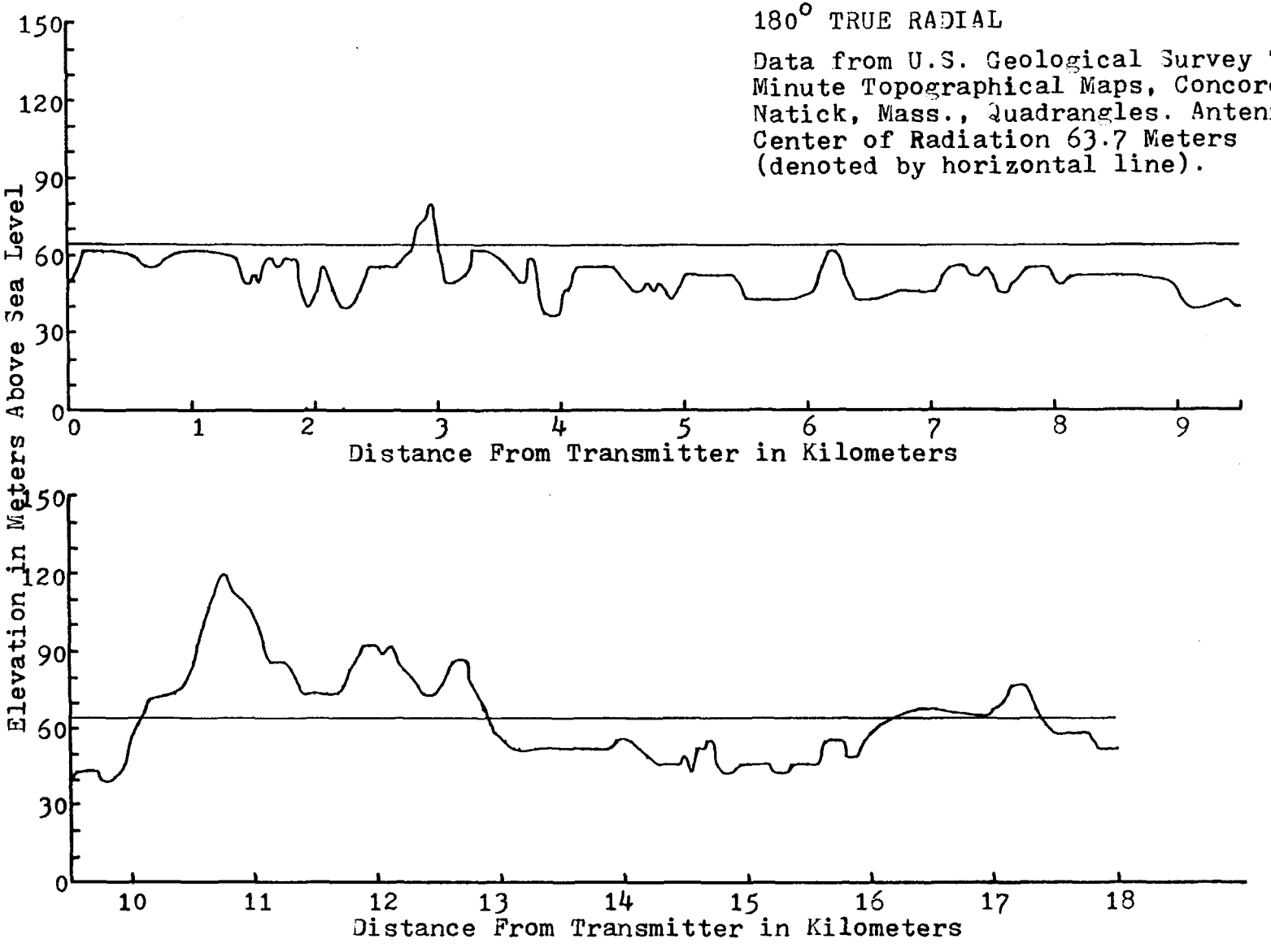



EXHIBIT 8e

October 1985

WIQH(FM) Channel 202

225° TRUE RADIAL

Data from U.S. Geological Survey 7.5 Minute Topographical Maps, Concord, Maynard, Framingham, Mass., Quadrangles. Antenna Center of Radiation 63.7 Meters (denoted by horizontal line).

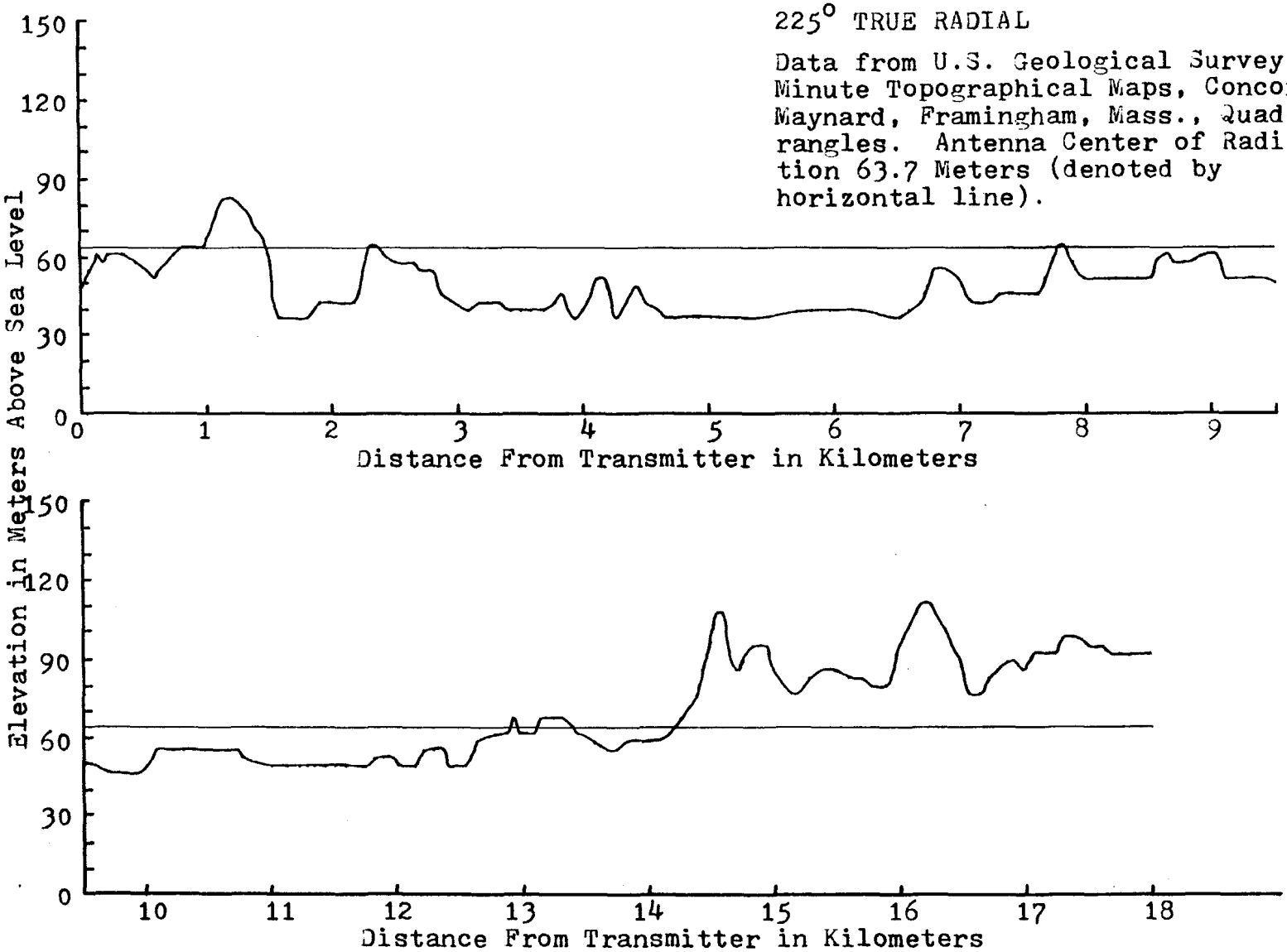



EXHIBIT 8f

October 1985

WIQH(FM) Channel 202

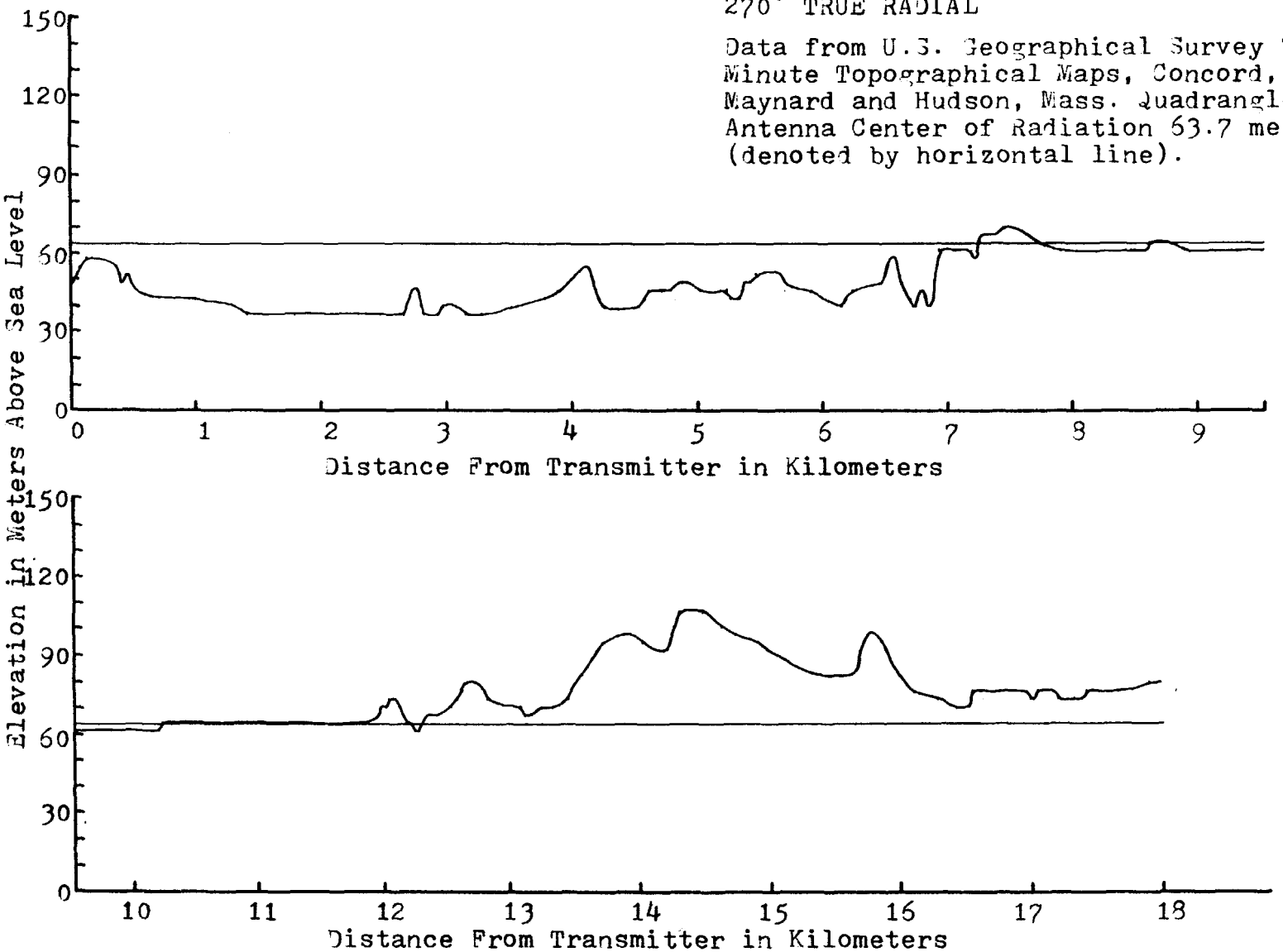



EXHIBIT 8g

October 1985

WIQH(FM) Channel 202

315° TRUE RADIAL

Data from U.S. Geographical Survey 7.5 Minute Topographical Maps, Concord, Maynard, Westford and Ayer, Mass. Quadrangles. Antenna Center of Radiation 63.7 meters (denoted by horizontal line).

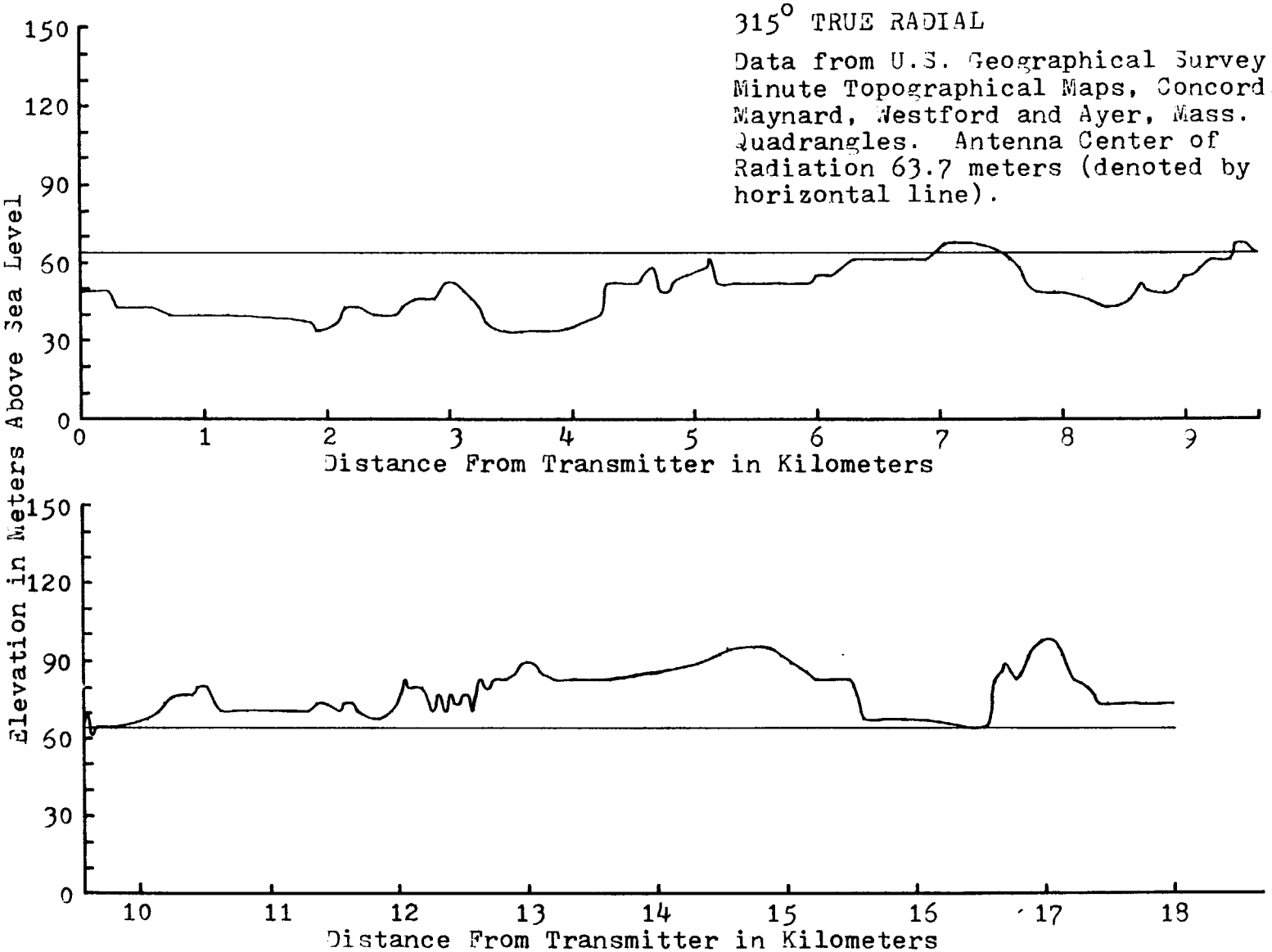



EXHIBIT 8h

October 1985

WIQH(FM) Channel 202 EXHIBIT 9 November 1985

# ENGINEERING STATEMENT

## WIQH(FM), CONCORD, MASS.

## ABSTRACT

[redacted]

WIQH(FM) is unquestionably overstated. The 1 mv/m distance shown is based, as mandated by the Commission's rules, on an antenna HAAT of 30 meters while the actual HAAT of the proposed WIQH(FM) antenna is 7.4 meters.

2. The distance to the WBMT(FM) 0.1 mv/m contour is also overstated in that the WBMT(FM) antenna HAAT is not 30 meters but is only 5.8 meters.

3. The predicted intereference, based on, the required, 30 meter HAAT for both antennas is actually of little significance since as shown in exhibit ENG-2 the area of concern is a total of 6 square kilometers. Of this area, 3.25 square kilometers lies either over a swamp or inside the boundaries of Hanscom Field, an airport. The entire remaining 2.75 square kilometers lies outside the town of Concord and shares no community of interest with the Concord Carlisle Regional School District.

First-Adjacent Channel

One existing station on channel 203 (88.5 MHz.) and two existing stations on channel 201 (88.1 MHz.) warranted investigation of potential interference; WFCR(FM) in Amherst, Mass. (88.5 MHz.), WMBR(FM) in Cambridge, Mass. (88.1 MHz.), and WYAJ(FM) in Sudbury, Mass., (88.1 MHz.). The distance to the 1 mv/m and 0.5 mv/m contours of each of these stations was calculated and plotted against the 1 mv/m and 0.5 mv/m contours from the proposed operation of WIQH(FM). The results of these calculations, listed in Table 3, show that the proposed WIQH(FM) will neither interfere with nor receive interference from WFCR(FM). The proposed WIQH(FM) will neither interfere with nor receive interference from WMBR(FM). The proposed WIQH(FM) will generate predicted interference to WYAJ(FM), and will receive predicted interference from WYAJ(FM), shown in exhibit ENG-1. There are three reasons why we believe the predicted interference to WYAJ(FM) from the proposed WIQH(FM) is not serious enough to prohibit a grant of the WIQH(FM)

to class A (impossible on their present channel), move to the non-reserved band as a class D secondary, or remain with their present facilities as a class D secondary and accept interference from any other non class D station. Not allowing the proposed WIQH(FM) to upgrade its facilities to class A because of predicted interference with an existing class D secondary station would clearly be outside the intent of section 73.512(a)(3) of the Commissions's Rules and Regulations.

As indicated above, there is also an area where the 0.5 mv/m contour of WYAJ(FM) is predicted to interfere with the 1.0 mv/m contour of the proposed WIQH(FM). This area totals 9.7 square kilometers. There are four reasons why we believe this interference is not objectionable and should not prohibit a grant of the instant application.

1. As explained above, the 1.0 mv/m contour of the proposed WIQH(FM) is overstated.

2. Of the total area of 9.7 square kilometers predicted to receive interference, 5.0 square kilometers overlies a swamp. Of the remaining 4.7 square kilometers only 0.4 square kilometers lies inside the town of Concord and this area does not presently receive 1.0 mv/m service from WIQH(FM).

3. The remaining 4.3 square kilometers lies in Sudbury, and shares no community of interest with the Concord Carlisle Regional School District.

Second-adjacent Channel

Only one second-adjacent FM station warranted investigation of potential interference; WHAB(FM), Acton, Mass. The distance to the 1 mv/m and 10 mv/m contours of this station were calculated against the 1 mv/m and 10 mv/m contours of the proposed WIQH(FM). The results of these calculations, listed in Table 4, show that the proposed WIQH(FM) will neither interfere with nor receive interference from WHAB(FM).

Third-Adjacent Channel

Only one third-adjacent FM station warranted investigation of potential interference; WERS(FM), Boston, MA. The distance to the 1.0 mv/m contours of both WERS(FM) and the proposed WIQH(FM) were calculated using the method required by section 73.313. The distance to the 100 mv/m contour of the proposed WIQH(FM) and WERS(FM) were calculated using the accepted "near field" formula. These contours were plotted and the results are shown in Table 5. These results show that the proposed WIQH(FM) receives no interference from the present and proposed operation of WERS(FM). The proposed WIQH(FM) 100 mv/m contour does overlap the existing and proposed WERS(FM) 1.0 mv/m contour, shown in exhibit ENG-1, but we feel this interference is not objectionable for the following reasons:

1. The total area of predicted interference to WERS(FM) from the proposed WIQH(FM) is 1.54 square kilometers. Of this area, 1.21 square kilometers is Concord Carlisle Regional

School District property, marsh, or a state forest.

2. The remaining 0.33 square kilometers of area predicted to receive interference when divided by 2,290 square kilometers inside the WERS(FM) present 1.0 mv/m contour and 4,300 square kilometers inside the WERS(FM) proposed 1.0 mv/m contour represents a less than 0.015% reduction to the present WERS(FM) and less then 0.008% reduction to the proposed WERS(FM) 1.0 mv/m service area.

TV Channel 6

As shown in exhibit ENG-3 the proposed WIQH(FM) will cause interference to an existing channel 6 TV station, WLNE-TV, New Bedford, Mass. The entire area of predicted interference lies outside the Area of Dominant Influence of WLNE-TV. WLNE-TV is, and is only, a CBS affiliate as is WNEV-TV, channel 7 in Boston, Mass. The entire area of predicted interference lies within the predicted city grade field strength contour of WNEV-TV. Pursuant to section 73.525(e)(3)(iii), all homes within the area of predicted interference to WLNE-TV can be subtracted from the total number of homes predicted to receive interference with the result that the proposed WIQH(FM) causes NO interference to any existing of proposed channel 6 TV station.

## SUMMARY

The instant application by the Concord Carlisle Regional School District seeks authority for WIQH(FM), 88.3 MHz., (chan 202) to increase its facilities from its present class D to 100 Watts ERP at a height of 7.4 meters HAAT.

Channel 202 is the only channel of those reserved for NCE-FMs on which it is possible to increase facilities without either causing or receiving actual objectionable interference.

The proposed WIQH(FM) predicted 1.0 mv/m contour will encompass an area of 106 square kilometers, while only 7.45 square kilometers of habitable area will receive predicted interference; and only 0.4 square kilometers within Concord will receive predicted interference, and as shown herein, the area to receive actual objectionable interference, if any, is very slight.

Predicted interference to existing and proposed FM stations is so minor as to be de minimus, and the facilities proposed herein will cause no actual objectionable interference.

The proposed WIQH(FM) is in full compliance with the TV channel 6 interference rules and regulations.

A waiver of section 73.509(a) for the reasons noted above is in the public interest and will serve to meet the public need and necessity.

WIQH(FM) Channel 202

TABLE 1

| FREQUENCY | CHANNEL | STATION | LOCATION | CLASS |
|---|---|---|---|---|
| 88.1 | 201 | WYAJ(FM) | Sudbury, MA | D |
| 88.3 | 202 | WBMT(FM) | Boxford, MA | A |
| 88.5 | 203 | WFCR(FM) | Amherst, MA | B |
| 88.7 | 204 | WHAB(FM) | Acton, MA | D |
| 88.9 | 205 | WERS(FM) | Boston, MA | B |
| 89.1 | 206 | (1) | | |
| 89.3 | 207 | (2) | | |
| 89.5 | 208 | (3) | | |
| 89.7 | 209 | WGBH(FM) | Boston, MA | B |
| 89.9 | 210 | (3) | | |
| 90.1 | 211 | (2) | | |
| 90.3 | 212 | WZBC(FM) | Boston, MA | A |
| 90.5 | 213 | (4) | | |
| 90.7 | 214 | (5) | | |
| 90.9 | 215 | WBUR(FM) | Boston, MA | B |
| 91.1 | 216 | (5) | | |
| 91.3 | 217 | (4) | | |
| 91.5 | 218 | WJUL(FM) | Lowell, MA | A |
| 91.7 | 219 | WAVM(FM) | Maynard, MA | A |
| 91.9 | 220 | (6) | | |

(1) First-adjacent to WERS(FM)
(2) Second-adjacent to WGBH(FM)
(3) First-adjacent to WGBH(FM)
(4) Second-adjacent to WBUR(FM)
(5) First-adjacent to WBUR(FM)

WIQH(FM) Channel 202

Potential Interference to Co-Channel from proposed WIQH(FM)

| Station | Distance To 1 mv/m | WIQH(FM) Distance To 0.1 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WGAO(FM) | 8.0 km | 18.0 km | 26.0 km | 40.33 km | NONE |
| WBMT(FM) | 9.5 km | 18.0 km | 27.5 km | 36.55 km | NONE |

Potential Interference from Co-channel to proposed WIQH(FM)

| Station | Distance To 0.1 mv/m | WIQH(FM) Distance To 1 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WGAO(FM) | 27.0 km | 5.8 km | 32.8 km | 40.33 km | NONE |
| WBMT(FM) | 32.0 km | 5.8 km | 37.8 km | 36.55 km | 1.25 km |

**TABLE 2 - CO-CHANNEL INTERFERENCE STUDY**

EXHIBIT 9 November 1985

WIQH(FM) Channel 202

Potential Interference to First-adjacent from proposed WIQH(FM)

| Station | Distance To 1 mv/m | WIQH(FM) Distance 0.5 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WMBR(FM) | 7.4 km | 8.1 km | 15.5 km | 23.6 km | NONE |
| WYAJ(FM) | 4.2 km | 8.1 km | 12.3 km | 9.4 km | 2.9 km |
| WFCR(FM) | 57.0 km | 8.1 km | 65.1 km | 89.1 km | NONE |

Potential Interference from First-Adjacent to proposed WIQH(FM)

| Station | Distance To 0.5 mv/m | WIQH(FM) Distance 1 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WMBR(FM) | 17.0 km | 5.8 km | 22.8 km | 23.6 km | NONE |
| WYAJ(FM) | 5.8 km | 5.8 km | 11.6 km | 9.4 km | 2.2 km |
| WFCR(FM) | 70.0 km | 5.8 km | 75.8 km | 89.1 km | NONE |

**TABLE 3 - FIRST-ADJACENT CHANNEL INTERFERENCE STUDY**

EXHIBIT 9 November 1985

WIQH(FM) Channel 202

Potential Interference to Second-adjacent from proposed WIQH(FM)

| Station | Distance to 1 mv/m | WIQH(FM) Distance to 10 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WHAB(FM) | 4.7 km | 1.9 km | 6.6 km | 9.8 km | NONE |

Potential Interference from Second-adjacent to proposed WIQH(FM)

| Station | Distance To 10 mv/m | WIQH(FM) Distance To 1 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WHAB(FM) | 1.5 km | 5.8 km | 7.3 km | 9.8 km | NONE |

TABLE 4 - SECOND-ADJACENT CHANNEL INTERFERENCE CHANNEL

EXHIBIT 9 November 1985

Potential Interference to Third-adjacent from proposed WIQH(FM)

| Station | Distance To 1 mv/m | WIQH(FM) Distance 100 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WERS(FM) Present | 27.0 km | 0.7 km | 27.7 km | 24.4 km | Note 1 |
| WERS(FM) Proposed | 37.0 km | 0.7 km | 37.7 km | 24.4 km | Note 1 |

Potential Interference from Third-adjacent to proposed WIQH(FM)

| Station | Distance To 100 mv/m | WIQH(FM) Distance To 1 mv/m | Required Separation | Actual Separation | Overlap Distance |
|---|---|---|---|---|---|
| WERS(FM) Present | 1.0 km | 5.8 km | 6.8 km | 24.4 km | NONE |
| WERS(FM) Proposed | 3.5 km | 5.8 km | 9.3 km | 24.4 km | NONE |

Note 1: The predicted interference area consists of a circle of 0.7 km radius centered on the proposed WIQH(FM) transmitter location

TABLE 5 - THIRD-ADJACENT CHANNEL INTERFERENCE STUDY

WIQH(FM) Channel 202